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cont'd

a front-end controller coupled to the plurality of back-end controller for striping the plurality of redundant arrays of disks and presenting the striped arrays as a virtual volume.

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2. The apparatus of claim 1 wherein the plurality of disks includes one or more spare disks.

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3. (Amended) The apparatus of claim 1 wherein the plurality of back-end controllers each include a plurality of busses, each coupled to one and only one of the disks associated with each of the plurality of redundant arrays of disks.

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4. (Amended) The apparatus of claim 1 wherein the plurality of back-end controllers comprises a RAID engine for presenting the plurality of disks as a plurality of RAID sets.

5. (Amended) The apparatus of claim 4 wherein the RAID engine comprises a RAID engine for presenting the plurality of disks as a plurality of RAID-5 sets.

6. (Amended) An apparatus for providing a virtual volume, the apparatus comprising:

a plurality of disks;

a redundant array of independent disks (RAID) engine comprising a plurality of back-end controllers coupled to the plurality of disks for organizing and presenting the plurality of disks as a plurality of RAID sets; and

a striping engine coupled to the RAID engine for receiving the plurality of RAID sets as members, striping the member RAID sets, and presenting the striped member RAID sets as a virtual volume.

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7. The apparatus of claim 6 wherein the RAID engine comprises a RAID-5 engine.

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8. (Amended) An apparatus for providing a virtual volume, the apparatus comprising:

a plurality of back-end controllers, each configured to organize and present X N-member RAID sets, and each having N busses capable of supporting X+1 disks each;

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*control*

a plurality of groups of  $X+1$  disks, wherein each disk in the group is coupled to one of the  $N$  busses associated with one of the plurality of back-end controller busses; and

a local front-end controller coupled to the plurality of back-end controllers for receiving the  $X$   $N$ -member RAID sets as members, striping the  $X$   $N$ -member RAID sets, and presenting the striped  $X$   $N$ -member RAID sets as a virtual volume.

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9. The apparatus of claim 8 wherein the local front-end controller is configured to generate mirror sets from the RAID sets received as members from different back-end controllers, to stripe the mirror sets, and to present the striped mirror sets as the virtual volume.

10. The apparatus of claim 8 wherein the plurality of back-end controllers includes primary local, redundant local, cloning, primary remote, and redundant remote back-end controllers.

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11. (Amended) The apparatus of claim 8 further comprising a remote front-end controller coupled to at least some of the plurality of the back-end controllers for receiving RAID sets as members, striping the member RAID sets, and presenting the striped member RAID sets as the virtual volume.

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12. The apparatus of claim 11 wherein the remote front-end controller is configured to generate mirror sets from the received RAID sets, to stripe the mirror sets, and to present the striped mirror sets as the virtual volume.

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13. (Amended) An electronic system comprising:

a computer; and

an apparatus coupled to the computer for presenting a virtual volume to the computer, the apparatus including:

a plurality of disks;

a plurality of back-end controller coupled to the plurality of disks for organizing and presenting the plurality of disks as a plurality of redundant arrays of disks; and

a front-end controller coupled to the plurality of back-end controllers for striping the plurality of redundant arrays of disks and presenting the striped redundant arrays of disks as the virtual volume.

14. (Amended) A method of storing data on a plurality of disks, the method comprising:

using a plurality of back-end controllers, organizing the plurality of disks into a plurality of redundant arrays of disks;

using at least one front-end controller, striping the plurality of redundant arrays of disks together to form a virtual volume; and

writing the data to the virtual volume.

15. (Amended) The method of claim 14 wherein organizing the plurality of disks comprises organizing the plurality of disks into a plurality of RAID sets.

16. (Amended) The method of claim 15 wherein organizing the plurality of disks comprises organizing the plurality of disks into a plurality of RAID-5 sets.

17. (Amended) The method of claim 14 wherein organizing the plurality of disks includes:

providing one or more back-end controllers, each having a plurality of busses; and

coupling the plurality of disks to the one or more back-end controller busses so that each bus is coupled to no more than one disk from each of the plurality of redundant arrays of disks and each bus is coupled to a spare disk.

18. (Amended) A method of storing data on a plurality of disks, the method comprising:

using a plurality of back-end controllers, organizing the plurality of disks into a plurality of redundant arrays of disks;

using at least one front-end controller, forming mirror sets from the plurality of redundant arrays of disks;

using at least one front-end controller, striping the mirror sets together to form a virtual volume; and

writing the data to the virtual volume.